

CLAIMS

What is claimed:

5        1. A tube fitting, comprising:

(a) a first fitting component and a second fitting component that are joinable; said first fitting component having an interior bore adapted to receive a conduit end; said bore having a camming surface at one end thereof;

10        (b) a conduit gripping element attached to said second fitting component; and

(c) a sealant material disposed in the fitting and that forms a backup seal outward said conduit gripping element upon pull-up of the fitting.

15        2. The fitting of claim 1 wherein said first fitting component has a first annular surface outside said camming surface; said second fitting component has a second annular surface outside said conduit gripping element; and said sealant is disposed on at least one of said first and second annular surfaces.

20        3. The fitting of claim 2 wherein said first and second annular surfaces extend generally radially relative to a longitudinal axis of the fitting.

25        4. The fitting of claim 2 wherein said sealant is squeezed between said first and second annular surfaces upon pull-up of the fitting.

5. The fitting of claim 1 wherein said first fitting component is a male threaded nut and said second fitting component is a female threaded body.

30        6. The fitting of claim 5 wherein said components comprise metal.

7. The fitting of claim 6 wherein said metal comprises stainless steel.

35        8. The fitting of claim 1 wherein said second fitting component comprises a surface that forms part of a trepan within said component, with said sealant being disposed within said trepan.

9. The fitting of claim 1 wherein said conduit gripping element is separable from said second fitting component upon pull-up of the fitting.

5 10. The fitting of claim 1 wherein said conduit is tubing.

11. The fitting of claim 1 wherein said conduit is pipe.

10 12. The tube fitting of claim 1 wherein said sealant comprises a soft metal, plastic, elastomer, viscous hydrocarbon or fluorocarbon grease, paste, or film.

13. The tube fitting of claim 1 wherein said sealant forms a backup seal for said conduit gripping element.

15 14. The tube fitting of claim 1 wherein said conduit gripping element extends from said second fitting component in a cantilevered manner.

15. The tube fitting of claim 1 wherein said sealant is in a liquid carrier suspension.

20 16. A tube fitting, comprising:

(a) a nut and a body that are joinable; said body having an interior bore adapted to receive a conduit end; said bore having a camming surface at one end thereof;

25 (b) a conduit gripping element attached to said nut; and

(c) a sealant material disposed in the fitting and that forms a backup seal outward said conduit gripping element upon pull-up of the fitting.

30 17. The fitting of claim 16 wherein said sealant is disposed in a trepan of said nut.

18. The fitting of claim 16 wherein said conduit comprises tubing or pipe.

19. The fitting of claim 16 wherein said conduit comprises stainless steel.

20. The fitting of claim 16 wherein said conduit gripping element is separable from said nut upon pull-up of the fitting.

5 21. A component of a fitting for gripping and sealing a conduit end, comprising:

(a) a body having an interior surface;

(b) a gripping element attached to said body;

10 (c) and a sealant disposed inside said body.

22. The component of claim 21 wherein said sealant is disposed in a trepan formed in said body.

15 23. The component of claim 22 wherein said sealant is disposed in said trepan as a backup seal outward a gripping element seal area.

20 24. The component of claim 21 wherein said sealant comprises a soft metal, plastic, elastomer, viscous hydrocarbon or fluorocarbon grease, paste, or film.

25 25. The component of claim 21 wherein said gripping element is separable from said body.

26. The component of claim 21 wherein said sealant is in a liquid carrier suspension.

27. A method of forming a seal between a threaded fitting nut, a threaded fitting body, and a tube, wherein said threaded fitting nut further comprises both a trepan and a tube gripping element that engages said tube when said threaded fitting body is pulled up against said threaded fitting nut, comprising:

(a) depositing a sealant in said trepan of said threaded fitting nut;

(b) placing said threaded fitting nut around said tube;

(c) engaging said threaded fitting body with said threaded fitting nut;

(d) tightening said threaded fitting body onto said threaded fitting nut such that said ferrule deforms and embeds itself in said tube and said sealant is partially squeezed out of said trepan and forms a fluid seal around the nut, body and tube.

5        28. The method of claim 27, wherein said sealant is a soft metal, plastic, elastomer, viscous hydrocarbon or fluorocarbon grease, paste, or film.

29. The method of claim 27, wherein said sealant is applied in a liquid carrier suspension to said threaded fitting nut when said nut is the open end up position.